



Galvanic Isolator

Gi-120/BK

Instructions



Model Gi-120/BK

Note:

Suitable for shore supplies supplied by an RCD (Earth Leakage Circuit Breaker) with a trip current not exceeding 30mA, and an MCB (Circuit breaker) not exceeding 16A.

Ensure that no ground connections on the vessel bypass the Galvanic isolator.

If in doubt, please consult a qualified electrician, or call us. We will be glad to advise.

IMPORTANT:

To prevent water ingress, before installation, and periodically, check Gland Nuts on both ends for tightness (Blue in photo). They should be as tight as possible **USING HAND FORCE ONLY.**



Tel: 0757 807 3490

www.galvanic-isolator.co.uk



Galvanic Isolator

Gi-120/BK

The galvanic isolator protects your boat from corrosion caused by galvanic and leakage currents that arise due to chemical interactions between your boat and nearby boats/structures and bank-side.



The Galvanic Isolator simply connects to EITHER end of your shore line. It can be connected either at the boat end or the shore end. Both options work equally well.



Locate your isolator where it will not be subjected to excessive heat, physical damage or water ingress, particularly the plug & socket. (Rain is acceptable - immersed or in running water is not).

When installed, to avoid water ingress, we strongly advise that the cable entries to the isolator the connectors should point downwards.



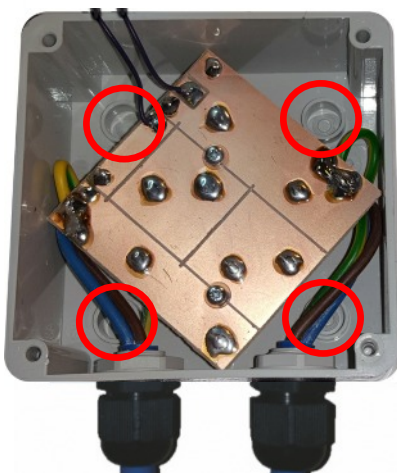
Installation - Fixing the Isolator

Locate a suitable position for the isolator, ideally protected from excess heat, moisture etc.

The cable entries must point downward. Although the isolator is protected against water, it is still wise to keep it, and the connectors as dry as possible.

The Isolator may be mounted to practically any flat surface.

The most secure method of mounting is to use the screw positions inside the isolator enclosure. Alternatively, it can be fixed using either a mastic type adhesive, or a double sided adhesive tape available from all DIY stores. If mounting using adhesive, please ensure that surfaces are sound, clean and dry. Support the isolator until adhesive has fully set, and use cable clips to prevent undue stress on the adhesive.



If using screws, remove the isolator lid, taking care not to damage the internal wiring, which should be held clear when drilling holes and inserting screws. From the rear of the enclosure, carefully drill the screw positions in each corner of the enclosure.

Take care not to damage wires when drilling.

Drill JUST large enough to accept the mounting screws you will use.

Mark the screw positions on the surface to which the isolator is to be mounted, and pilot drill or drill & tap holes as necessary.

Fix with chosen screws, taking care not to over tighten, as this could damage the enclosure.

To prevent water ingress, apply a small amount of sealant on the rear of the isolator at the screw positions, and fix the isolator to the surface.

**Fixing Points
Circled Red**

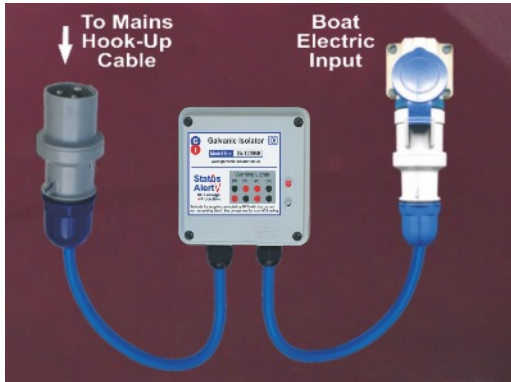
Installation - Fixing the Isolator continued

As a further measure to prevent water ingress, when fixed, apply a little sealant to the heads of the fixing screws.

Re-fix the isolator lid. The screws should be tightened firmly, taking care not to over tighten.



When drilling fixing holes in the isolator enclosure, it's easier to drill from the rear. Take care not to damage internal cables.



Installation - Connecting the Isolator

Switch off the electricity supply at the shore supply, and disconnect the shore line.

Connect the isolator to the chosen end of the shore line.

Connect the free end of the isolator to the boat or shore connector.

Switch on the electricity supply at the shore supply.

Check that the RCD test button on the boat operates normally
You are now protected.

Note:

Isolators may be supplied with the connectors either way around. If you wish to change them this is permissible. Simply interchange the connectors, paying attention to polarity. Please ensure connecting screws and gland nuts are tight.

To open the connectors, please press clip (see photo), and twist connector body halves in opposite directions.

If in doubt, please seek advice from a qualified person.

IMPORTANT:

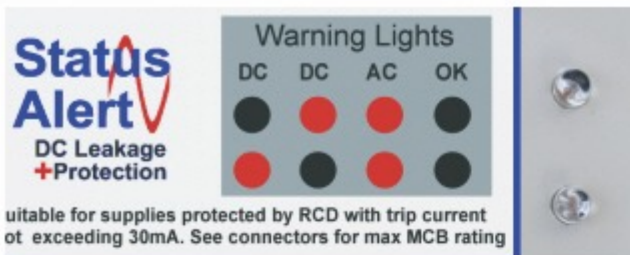
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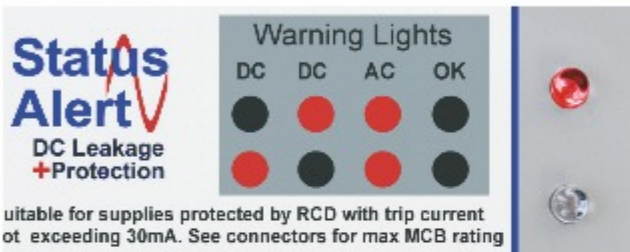
Gland Nuts should be as tight as possible **USING HAND FORCE ONLY.**



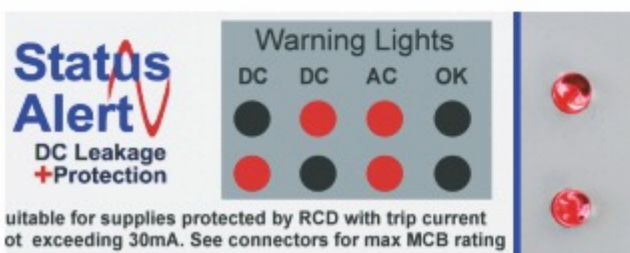
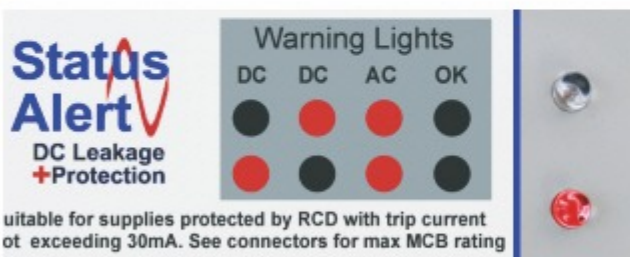
The LED's on your isolator inform you about any faults with your boats Earthing arrangement. Illuminated LED's NEVER indicate a faulty isolator.



Both Lights OFF: Normal operation. No action required – just check back occasionally to ensure that all's well.



One Light ON: If either light is on, DC leakage is indicated. This can cause severe corrosion to your boat. Following pages give clear basic advice on how to resolve the problem.



Both Lights ON: If both lights are ON, this indicates AC leakage, usually from the mains wiring or a connected appliance. AC leakage can be a danger to life. Please see instructions for help in rectifying the problem.

Occasionally, when you fit a Status Monitored galvanic isolator, both of the warning lights may glow straight away.

If both lights are illuminated on your galvanic isolator, you have AC earth leakage. **You do NOT have a faulty isolator.** In fact, your isolator is alerting you to a potentially dangerous situation that you may not previously have been aware of.

There are two main types of earth leakage: Mains Leakage and Imprinted Leakage.

Mains Leakage

Mains Leakage happens when an appliance, cable or connection has poor insulation resistance, and some of the circuit's current "leaks" away to earth. If there is sufficient leakage, the earth leakage circuit breaker, also known as the RCD, will trip, disconnecting the supply.

At lower levels of leakage, although the RCD may not trip, the lights on your galvanic isolator may still glow, alerting you to the likelihood of earth leakage. Usually, an earth leakage fault will only get worse, so you should always take this seriously and investigate.



Ensure that the electrical supply is disconnected before working on a circuit, and remember that in some systems, an auxiliary supply such as an inverter may automatically kick in when the mains supply is disconnected. If you are in any doubt, you should entrust the work to a competent person.

No two electrical systems are the same, so it's only possible to give the broadest suggestions of how to locate any problem. Usually some detective work is required, and this starts by switching off the main RCD on the boat. In most cases, this will result in the lights on the isolator going out. If not, there is probably something connected to the mains supply BEFORE the RCD.

Assuming the lights go out when the RCD is switched off, switch off ALL the circuit breakers, then switch the RCD back on. In most cases, the isolator's lights will stay off. You can then switch the circuit breakers back on one at a time until the isolator's lights come back on. The last circuit breaker you switched on has the faulty circuit, or appliance connected to it.

Very rarely, even though all the circuit breakers (except the RCD) are switched off, the isolator lights will remain on. In this case you will need to disconnect all appliances, either by pulling out the plugs, or disconnecting any wired in appliances. Do this one at a time, taking care to ensure that you don't forget anything. As you disconnect items, check the isolator lights. The last item you disconnect is the one causing problems.

When you have traced the fault to a single appliance or circuit, it must then be checked for earth leakage by a competent person.

Imprinted Leakage

Imprinted Leakage typically occurs when equipment using a Switched Mode Power Supply Unit, (SMPSU), is connected to your system.



Pay close attention to earthing of equipment. Equipment is often installed without adequate earth bonding. Please consult the equipment's installation manual, or contact the manufacturers for more information.



Earth bonding point

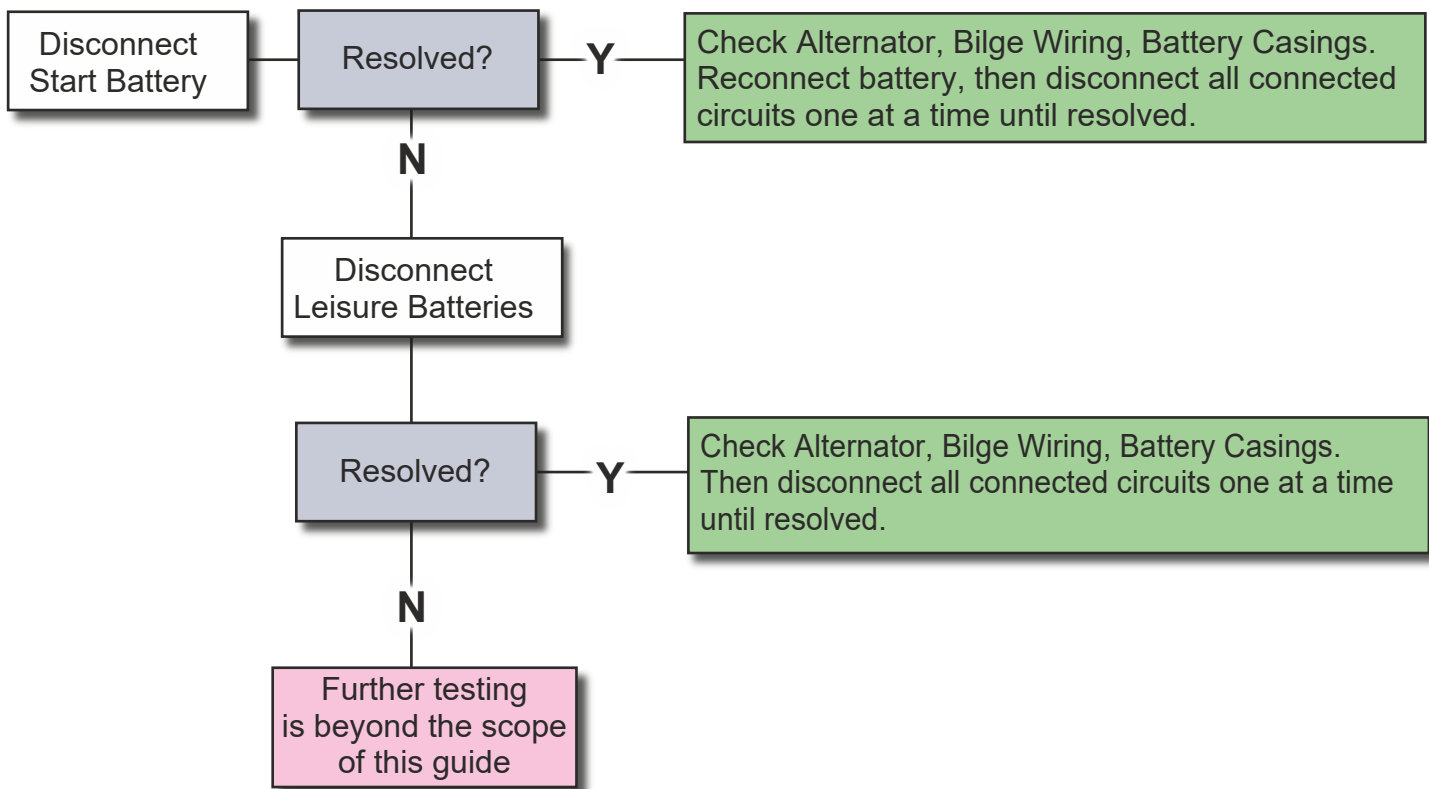
Equipment utilising SMPSU's include, Battery Chargers, Computers, TV's, Domestic Appliances, Phone Chargers etc.

In our experience, battery chargers are often the cause of imprinted leakage. CE regulations require that equipment should not create this kind of interference, but not all equipment is as "clean" as it should be.

Because of the way SMPSU's operate, some of them leak power into the boat's earth wiring. This can cause the galvanic isolators light to come on, as the isolator correctly detects the leakage.

Imprinted Leakage is traced in exactly the same way as for Mains Leakage. However, when you track the problem down to an individual appliance, it may still pass an Earth Leakage test. In that case, it's likely that the problem is Imprinted Leakage. Imprinted Leakage is often due to incorrect installation, but can also result from design or manufacturing issues.

ONE (either) LED glowing



BOTH LEDs glowing



This indicates a possibility of AC (mains voltage) leakage. Proceed with great care. Danger of electrical shock. If in doubt, please consult a qualified electrician.

